

ADDENDUM 2 to SEPA CHECKLIST (originally submitted 1/18/08)
BIO ENERGY (WASHINGTON) LLC.
LANDFILL GAS TO ENERGY PROJECT AT KING COUNTY CEDAR HILLS
REGIONAL LANDFILL

B.7.a.1 Describe any special emergency services.

No special emergency services will be required. Design and operation of the gas processing facility will need to comply with PSCAA air permit conditions and applicable emergency gas generation. The site will also be subject to safety requirements as established by PSE for gas conveyed from the facility to the PSE conveyance pipe and pipeline.

BioEnergy (Washington), LLC will have written emergency plans and procedures, safety procedures and environmental plans (SPCC) for the landfill gas to energy project prior to startup (SPCC if required will be in draft). Appendix 6 provides a copy of the training/operating/safety procedures table of contents for an existing plant. These documents have been supplemented by a revised SPCC plan table of contents and the table of contents of the Safety Manual.

The facility is designed to minimize the chances of fire and explosion. All piping and tanks will be constructed to the code appropriate for their use. The tanks operate at a maximum of 100 psig, reducing the quantity of methane contained in the tanks. Tanks containing any appreciable amount of methane are in parallel and will be isolated in case of an emergency. All pertinent automatic valves are "fail close" valves, which would isolate tanks in the event of a power failure or emergency shut down. All vessels, compressors, process skids, etc. incorporate both mechanical and electronic controls to protect against over pressurization of the respective systems. Also the fire monitoring and alarm system will be configured to initiate and complete a total plant shutdown should an excessive heat, leak or similar situation develop. Heat sensors will provide emergency notification. Landfill gas flow to the processing facility will be terminated in the event of a significant problem at the processing facility. The processed gas pipeline will be buried, mitigating the effects of a problem with the pipeline.

The facility will be equipped with water guns to mitigate a potential fire. We have retained a fire prevention expert to review the plans and suggest any additional protection and mitigation measures.

The facility will have a 10,000 gallon fuel oil storage tank and two 500-gallon lubrication oil tanks. These tanks will be placed in a spill containment dike designed to contain more than the contents of the largest tank. Unloading operations will be from a diked unloading pad that will contain the contents of the tank truck. The facility will maintain a store of liquid spill containment items (absorbent, booms, pads) to enable the operators to respond to a spill or leak. Operators will be trained in initial response to spills and leaks. The facility will have a relationship with a spill response contractor to provide additional services and equipment on short notice in the event of a liquid release that are beyond the response capabilities of the operating personal.

The facility will neither be manned nor equipped to provide its own internal emergency services in the event of a catastrophic failure and will have to rely on local emergency services providers such as the fire department or emergency medical support. Operators will be trained in all necessary notification procedures. We will welcome familiarization visits by local emergency responders so that they are familiar with the facility.

ADDENDUM SEPA CHECKLIST (originally submitted 1/18/08)
BIO ENERGY (WASHINGTON) LLC.
LANDFILL GAS TO ENERGY PROJECT AT KING COUNTY CEDAR HILLS REGIONAL
LANDFILL

A. Background

8. List any environmental information you know about that has been prepared, or will be prepared directly related to this proposal.

BioEnergy (Washington) LLC is applying for an air permit from the Puget Sound Clean Air Agency (PSCAA) for the landfill gas to energy project. The air permit application includes a process description, copy of the SEPA checklist, emission estimates, regulatory review, an evaluation of Best Available Control Technology (BACT), and an air quality impact analysis.

The regulatory review evaluates all potentially applicable Federal, State and Local regulations to assure that the project complies with all applicable requirements. The BACT evaluation includes a review of latest available control technology and establishes emission limitations based on the maximum degree of reduction for each air pollutant emitted from a new or modified stationary source on a case-by-case basis. In the air quality impact analysis the emissions of toxic air pollutants from the project are evaluated to determine their impact on the ambient air around the facility. The ambient impacts are compared to Acceptable Source Impact Levels established in WAC 173-460 which were intended, in part, to maintain such levels of air quality as will protect human health and safety.

9. Do you know whether applications are pending for government approvals of other proposals directly affecting the property covered by your proposal?

No.

10. PSCAA air permit application will be submitted in early March 2008. A Building Permit application will also be submitted to King County DDES in March.

11. Give brief complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (lead agencies may modify this form to include additional specific information on project description.)

The Bio Energy facility is designed to convert landfill gas generated by the King County Regional Landfill to pipeline quality methane (please refer to Appendix 5, Figure 1 Process Flow Diagram). Our design basis is a flow of 11,000 cubic feet per minute (cfm) of landfill gas containing about 46% methane (CH₄). The landfill gas is sent through a series of steps designed to remove components such as water, sulfur (hydrogen sulfide and mercaptans), carbon dioxide, oxygen, nitrogen and other trace components of the landfill gas. The design basis is to produce about 4,000 cfm of gas for pipeline distribution containing about 97% methane and 3% nitrogen. The process produces a side stream composed of 39% methane, 55% nitrogen and 6% carbon dioxide that will be used to power engines in an electrical power generating facility co-located with the gas processing equipment. A second stream will be sent to a thermal oxidizer. This stream will contain methane at a concentration (~10%) that cannot be used for electrical generating equipment because of concentration, carbon dioxide from the landfill gas and trace contaminants (non-methane organic chemicals (NMOC's) including VOC's, siloxanes) removed during the gas processing. The facility will have a second flare

to handle gas streams during startup and shut down, periods the engines cannot accept landfill gas and other "emergency" situations. When the Bio Energy facility cannot operate, the landfill gas produced by CHRLF will be directed to the existing flares belonging to the landfill. No waste oil or other contaminants discharged to the wastewater, surface water or the environment.

The electrical power generating portion of the project is made up of 12 Detroit Diesel Series 60 engines, each equipped with a 350 kW generator. The power-generation plant will be enclosed in a steel building. Power generation will be used to supplement incoming power. The facility will require about 6 MW of power to operate at full capacity. Bio Energy will produce about 2MW of power from the operation of 6 generators deriving about 92% of the energy required for operation from the landfill gas processing facility. The power generating facility has the ability to generate up to 4 MW of power and may do so for short periods. The facility will also include a 10,000-gallon storage tank for fuel oil.

Expected Environmental Benefits

CO₂ Footprint reduction

The Bio Energy facility will capture methane currently being flared by the landfill and send a majority of the methane to a natural gas distribution pipeline for commercial use. We estimate that this will reduce the carbon foot print of the landfill by 63%.

Current Flared Landfill Gas	5.78E+09	cfy
CO2 From Natural Processes	42037	tpy
CO2 From Flaring Methane	165146	tpy
Total CO2	207183	tpy
Cedar Hills Project		
CO2 From Natural Processes	42037	tpy
CO2 From Electricity Production	18352	tpy
CO2 from Thermal Oxidizer	16765	tpy
CO2 Project total	77154	tpy
CO2 Reduction from Project	62.8%	

NOx Emissions Reduction

In 1999 the landfill produced 68 tons per year (tpy) of NOx from flaring the landfill gas. We estimate that if the landfill produces 11,000 CFM of landfill gas that is sent to the flares, the NOx will increase to as much as 93 tpy. Our preliminary estimates of NOx emissions from the Bio Energy facility are about 27 tpy from the engine operation and thermal oxidizer. This results in an estimated reduction in NOx emissions of 66 tons per year.

Comment: I assumed the flares operated at 0.07 lbs/MMBtu NOx emissions. I don't know if this is correct.

SO₂ Emissions Reductions

The process removes sulfur in the form of hydrogen sulfide and mercaptans from the landfill gas. Landfill gas consumed by the facility will have a very low sulfur content. Based on our assumptions of landfill gas sulfur content, the facility will remove about 6.9 lbs/hr of sulfur from the gas. This results in a net SO₂ decrease of up to 60 tpy of SO₂.

Comment: We are going to use SCR, the NOx reduction is greater. Also, would it be best to use absolute tons AND percent reductions from the current situation?

B. Environmental Elements

1. Earth

- c. What general types of soil are found on the site (i.e., clay, sand, gravel, peat, much)? If you know the classification of agricultural soils, specify them and note any prime farmland.

A geotechnical investigation was completed on the proposed Bio Energy (Washington) LLC site to explore the site subsurface conditions and provide geotechnical engineering recommendations for use in the design and construction of the proposed facility. Appendix 4 provides the December 2007 Report of Geotechnical Engineering Services, by Geo-Design Inc.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke, greenhouse gases) during construction and when the project is completed? If any, generally describe and give approximate quantities if known?

Pre construction – The site is less than 2 acres. The preconstruction activities will consist of site preparation (limited grading and pavement removal). This period is anticipated to be relatively short due to the small size of the site and limited site preparation requirements.

Construction – Construction is anticipated to last less than three months. During site construction, there may be dust and emissions from construction equipment. The approximate quantity is unknown but predicted to be insignificant due to the small size of the site. There will be some small quantity of emissions from construction equipment such as portable generators and vehicles; these emissions will not vary significantly from the existing site use.

Post construction/Operating – The emissions from the gas processing facility will be estimated through modeling and will be subject to an air permit issued by PSCAA.

- b. Are there any off site sources of emissions or odor that may affect your proposal.

The proposal will not be affected by the operations at the King County CHRLF.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any.

Pre construction – During site preparation, a water truck will be available to spray the ground to reduce dust emissions.

Construction – During construction, a water truck will be available to spray the ground to reduce dust emissions.

Post construction – The BioEnergy (Washington) facility will operate under the air permit issued by PSCAA. As the site will be paved or covered with gravel, no dust issues are anticipated.

The landfill is currently in full compliance with all applicable air regulatory requirements and its Operations Certificate. This project will also maintain full compliance with the Operations Certificate and a new facility air permit with PSCAA.

3. Water

a. Surface

5. Does the proposal lie within a 100-year floodplain.

Per King County GIS Center maps, the CHRLF does not lie within a 100-year floodplain.

c. Water Runoff (including storm water)

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any. Include quantities, if known. Where will this water flow? Will this water flow into other waters? If so, describe.

Please see Appendix 5, Figure 2 Revised Site Layout, which notes the storm water piping and associated storm water outlets. The site is currently used as a parking area and the storm water runoff drains into the existing landfill storm water collection system. With 38 inches of rainfall per year, the average total storm water runoff is expected to be approximately 5,600 gallons per day. The new site will not significantly impact this runoff and the runoff will drain into the landfill storm water collection system. We do not expect any significant changes in the flow volume or characteristics of storm water runoff from the project.

2. Could waste materials enter ground or surface waters?

No, it is unlikely that waste materials could enter ground or surface waters. BioEnergy (Washington) LLC has taken precautions in their design elements to prevent the waste materials from entering ground or surface waters. Following is a description of waste materials anticipated to be generated from the facility and the plans for collection, handling and disposal.

Activated Carbon - The process uses activated carbon. We believe the carbon will require replacement about once per year. The spent activated carbon will be returned to the supplier for regeneration.

Sulfur - The process uses a media in vessels to remove the sulfur compounds from the gas stream. The sulfur compounds react with iron in the media to form non hazardous iron pyrite. Once the media reaches its useful life it will be regenerated similar to the activated carbon.

Normal Facility Refuse - Normal trash is expected to be disposed of by King County at the landfill under an agreement with the landfill. If no such agreement is developed, the facility will contract with local commercial firms for the appropriate containers and waste pickup and disposal, similar to other businesses operating in King County.

Used Oil - The process will generate used oil from engine/motor oil changes. The process will also generate oily water (slop oil from engine and fuel operations). The facility has a tank to collect these oils. In addition, an oil-water separator is to be installed on the compressor oil discharge. These used oils will be disposed by a contract firm according to existing Federal and Washington rules. Our facilities in North Carolina, Virginia, Maryland and Pennsylvania use Safety Kleen to pick up and treat this oil for recycling. We will use a similar collection and disposal firm for this project.

Oily wastes will not impact the storm water system since an oil water separator will be installed and operated by BioEnergy (Washington), LLC for this project.

4. Plants

a. Check or circle types of vegetation found on the site:

The site is approximately two acres with no vegetation. There is no landfill cover on the BioEnergy (Washington) LLC site.

5. Animals

- a. Check or circle any birds and animals which have been observed on or near the site:

The BioEnergy (Washington) LLC site is approximately 2 acres of the much larger CHRLF which comprises almost 920 acres. The birds, mammals and fish noted on the SEPA checklist are not expected to be on the BioEnergy (Washington) LLC site.

6. Energy and Natural Resources

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The project is a Greenhouse Gas Reduction project. The project will take landfill gas that is currently flared with no energy utilization, clean it and use it as natural gas fuel which will displace fossil fuel that is currently consumed by the surrounding community. The facility will generate some of the electrical power needed for the project. Approximately 92% of the energy required for electrical generation will come from the processed landfill gas.

7. Environmental Health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill or hazardous waste that could occur as a result of this proposal?

The current landfill gas flare station combusts the gas generated and collected from the landfill. The new facility will remove or combust the same contaminants currently in the gas. The new facility will have equipment oil that will be managed so as not to impact the environment or site workers. Please see attached Appendix 5, Figure 1 Process Flow Diagram showing what and where gas and contaminants enter and exit the facility.

- a.1. Describe special emergency services that might be required.

BioEnergy (Washington), LLC will have written emergency plans and procedures, safety procedures and environmental plans (SPCC) for the landfill gas to energy project prior to startup (SPCC if required will be in draft). Appendix 6 provides a copy of the training/operating/safety procedures table of contents for an existing plant.

b. Noise

2. What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (i.e., traffic, construction, operation, other)? Indicate what hours noise would come from the site.

The current landfill gas collection and flare station has equipment that creates noise. Similarly the new facility will also have equipment that creates continual sound. The facility equipment is currently being specified and exact sound levels will not be known until the facility is designed and installed.

3. Proposed measures to reduce or control noise impacts, if any:

The design of the facility will minimize the noise by putting the engines in an insulated building. Once the facility is installed, BioEnergy (Washington), LLC. will take sound measurements to ensure the sound levels at the landfill property boundary are below allowable levels by WAC code. BioEnergy (Washington), LLC will also take sound measurements where County personnel are

working at the landfill to ensure the sound levels are safe and do not exceed OSHA safety standards. INGENCO has a history at numerous sites of installing facilities without noise impact to the surrounding community. If necessary the owner will install additional sound mitigation measures such as sound blocking walls around equipment, or additional insulation to ensure compliance will all applicable regulations.

8. Land and Shoreline Use

k. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The existing land use is as a regional landfill for King County. BioEnergy (Washington), LLC will comply with the same land use by obtaining building permits through King County Department of Development and Environmental Services (DDES).

11. Light and Glare

a. What type of light and glare will the proposal produce? What time of day would it mainly occur?

The emergency flare (shown in Appendix 5 Figure 2 Revised Site Layout) will have a visible flame at the top of a 50 foot tall stack. This flare may operate at any time of day depending on plant conditions. This flare will operate less than 500 hours per year.

Figures

Appendix 1 – included with original SEPA

Appendix 2 – included with original SEPA

Appendix 3 – included with original SEPA

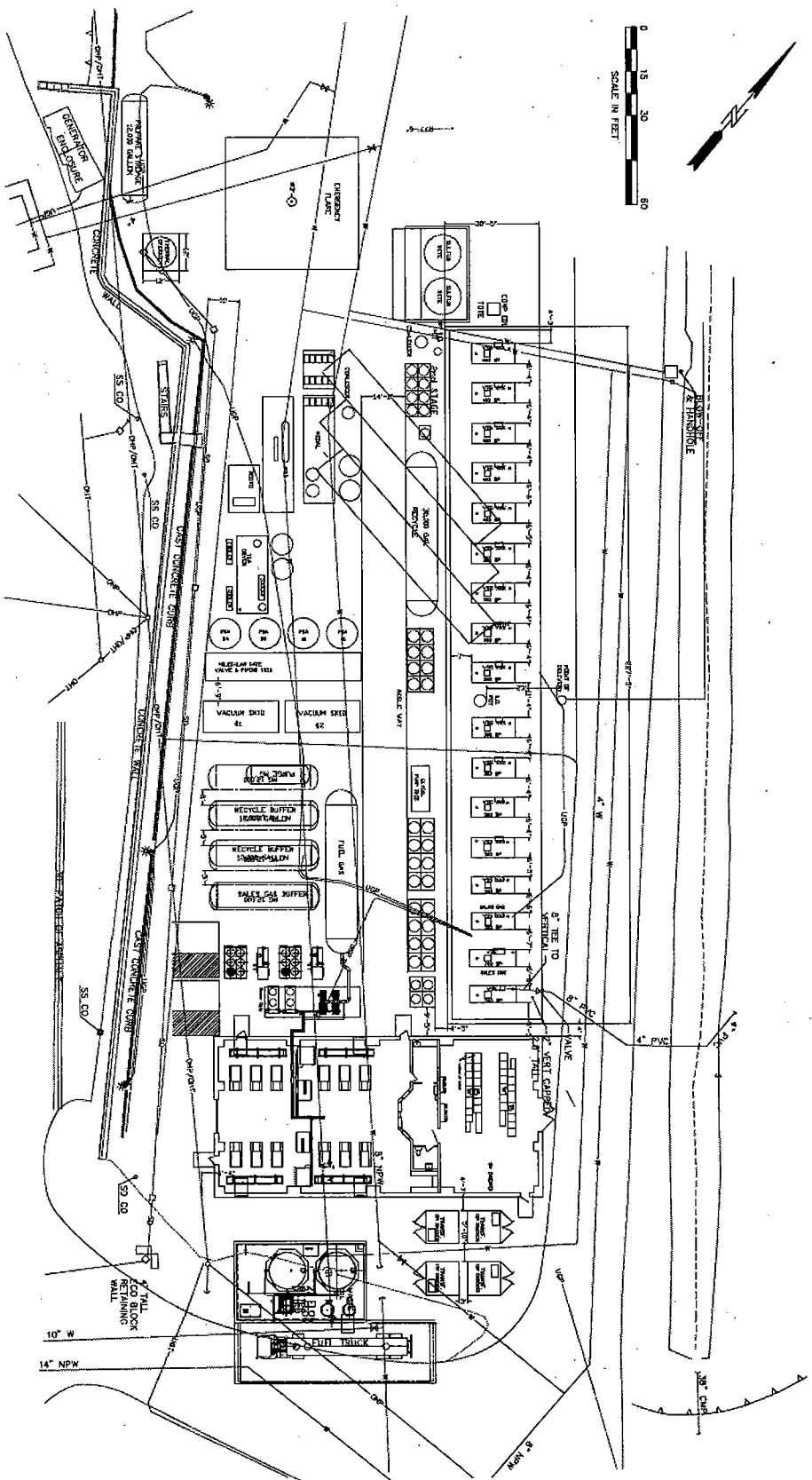
Appendix 4 – Geotechnical Report

Appendix 5 – New Figures

Figure 1 Process Flow Diagram

Figure 2 Revised Site Layout

Appendix 6 – Typical Training/Operation/Safety Procedures Table of Contents



REV	BY	DATE	DESCRIPTION	PROJECT NO.
01	WVA	02/17/98	ISSUED	1000000000
02	WVA	02/17/98	ISSUED	1000000000
03	WVA	02/17/98	ISSUED	1000000000
04	WVA	02/17/98	ISSUED	1000000000
05	WVA	02/17/98	ISSUED	1000000000
06	WVA	02/17/98	ISSUED	1000000000
07	WVA	02/17/98	ISSUED	1000000000
08	WVA	02/17/98	ISSUED	1000000000
09	WVA	02/17/98	ISSUED	1000000000
10	WVA	02/17/98	ISSUED	1000000000

ASDA

MERICHAM

GAS TECHNOLOGY PRODUCTS

SPRINGFIELD, ILLINOIS

MERICHAM CHEMICALS & REFINERY SERVICES LLC

CEDAR HILLS LANDFILL

GAS PROCESSING

REV	BY	DATE	DESCRIPTION	PROJECT NO.
01	WVA	02/17/98	ISSUED	1000000000
02	WVA	02/17/98	ISSUED	1000000000
03	WVA	02/17/98	ISSUED	1000000000
04	WVA	02/17/98	ISSUED	1000000000
05	WVA	02/17/98	ISSUED	1000000000
06	WVA	02/17/98	ISSUED	1000000000
07	WVA	02/17/98	ISSUED	1000000000
08	WVA	02/17/98	ISSUED	1000000000
09	WVA	02/17/98	ISSUED	1000000000
10	WVA	02/17/98	ISSUED	1000000000

THIS DRAWING IS CONSIDERED A REVISION TO THE PREVIOUS EDITION OF THIS DRAWING.

March 24, 2008

Mizanur Rahman, Ph.D., MBA, P.Eng.
Engineer III
Engineering Services Section
Solid waste Division
King County Dept. of Natural Resources & Parks

Dear Dr. Rahman:

A communication from Marshall Carpenter indicated your interest in a Hazardous Waste Mitigation Plan for our proposed facility at the Cedar Hills Landfill. The facility will not receive or generate any hazardous waste. The major waste streams for this facility are summarized below.

Activated Carbon - The process uses activated carbon. We believe the carbon will require replacement about once per year. The spent activated carbon will be returned to the supplier for regeneration.

Sulfur - The process uses a media in vessels to remove the sulfur compounds from the gas stream. The sulfur compounds react with iron in the media to form non hazardous iron pyrite. Once the media reaches its useful life it will be regenerated similar to the activated carbon.

Normal Facility Refuse - Normal trash is expected to be disposed of by King County at the landfill under an agreement with the landfill. If no such agreement is developed, the facility will contract with local commercial firms for the appropriate containers and waste pickup and disposal, similar to other businesses operating in King County.

Used Oil - The process will generate used oil from engine/motor oil changes. The process will also generate oily water (slop oil from engine and fuel operations). The facility has a tank to collect these oils. In addition, an oil-water separator is to be installed on the compressor oil discharge. These used oils will be disposed by a contract firm according to existing Federal and Washington rules. Our facilities in North Carolina, Virginia, Maryland and Pennsylvania use Safety Kleen to pick up and treat this oil for recycling. We will use a similar collection and disposal firm for this project.

If you have any questions regarding this response, please contact me at (804) 521-3557.

Sincerely,

Robert L. Greene, Ph. D.
Environmental Manager

Mizanur Rahman, Ph.D., MBA, P.Eng.

Engineer III

Engineering Services Section

Solid waste Division

King County Dept. of Natural Resources & Parks

Dear Dr. Rahman:

This is in response to your questions concerning thermal radiation hazards from our project. We believe the nature of the material being processed and, more importantly, the design of the system will reduce and potentially mitigate the thermal effects of a fire.

The facility is designed according to customary and standard practices compressed gasses. Safety features included in the design are electrical classification to reduce ignition sources; ultraviolet/infrared flame detectors, the ability to isolate tanks in the event of a problem; and relief venting in case of tank over pressure to prevent tank rupture. The tanks containing compressed methane are limited in size, which reduces the degree of hazard potential from any one tank. In the event of a fire detected by the UV/IR monitor, the process will go into emergency shut down. Gas flow will be terminated, tanks will be isolated and warning systems will be activated. This will include alarms and emergency notification. A monitor will automatically begin cooling the tanks with water to prevent any heat-related problem. If a flame is detected by ultraviolet and infrared sensors a series of automatic responses including termination of gas flow, tank isolation, warning signals, emergency notification and activation of monitors to provide emergency water cooling of tanks in the processing area.

Our review of potential release scenarios indicate that a release of compressed methane from a tank caused by over-pressuring the tank vented through a relief vent would not result in a mass flow rate of methane that would place a significant thermal radiance potential on nearby buildings or personnel. However, in the very unlikely event of an abrupt rupture and conflagration caused by some outside force or event, the quantity of methane is sufficient to create potentially harmful thermal radiance. Bio Energy will install a barrier wall between the compressed methane tanks and King County buildings to mitigate thermal radiance effects.

Sincerely,

Robert L. Greene, Ph. D.